

## TWO NEW FERNS OF THE GENUS POLYPODIUM, FROM JAMAICA.

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*Aid in Cryptogamic Botany, Division of Plants.*

The two species of *Polypodium* here described as new were gathered in the Blue Mountains of Jamaica by Prof. L. M. Underwood and the writer in the spring of 1903. Both were fairly well characterized by Jenman in his synoptical list of the ferns and fern allies of Jamaica, but were, however, associated wrongly by him, in the one case with an extralimital species, in the other with South American plants doubtfully the same and, at any rate, under an untenable name. The writer is indebted to Professor Underwood for the privilege of examining the material of the Jenman herbarium now preserved in the collections of the New York Botanical Garden.

### ***Polypodium rigens* sp. nov.**

Plant 15–28 cm. high, with 10–15 slender rigid fronds; rhizome about 4 mm. thick, elongate, short-creeping or ascending, the grayish inconspicuous chaff noticeably iridescent under a lens, narrow, long-acuminate; stipes 2–4.5 cm. long, rigid, for the most part closely set, dark brownish, thickly covered with long spreading bright-brown hairs; laminae 13–23.5 cm. long, 1–2 cm. broad, linear or linear-lanceolate, tapering from near the middle to both apex and base, erect but usually arcuate toward the apex, dark-green above, conspicuously lighter on the under surface, coriaceous, opaque, cut to the blackish rachis into 45–60 pairs of alternate approximate pinnae; pinnae exactly oblong, regularly rounded at the apices, the largest (near the middle of the lamina) 10 mm. by 3.5 mm., decreasing in size very gradually above to give rise to a terminal cauda, which is crenate and finally entire, decreasing rather more abruptly below, the lowermost pinnae minute (2 mm.), slightly more distant, more or less subopposite and dilated upon the upper side; the upper two-thirds of the lamina soriferous,

the sori borne midway to the margins (4-6 pairs to each pinna) on the obscure free simple veins, the sporangia mixed with a few bright-brown hairs, similar hairs borne rather abundantly on both sides of the rachis but sparingly along the midveins and sterile veins on the under surface; the sori at length nearly or quite confluent, covering the surface of the pinna from base nearly to apex and against the revolute margins.

Type in the United States National Herbarium, no. 427566; collected from trees on the heavily wooded upper slopes of John Crow Peak, Jamaica, altitude 1,650-1,800 meters, by William R. Maxon, *no. 1346*, April 18, 1903. The type sheet comprises two plants and several detached fronds, all of which are perfectly characteristic of the species as represented by the following specimens, all from Jamaica:

Highest slopes of John Crow Peak, altitude 1,650-1,800 meters, *Underwood nos. 806, 2456, 2456a; Maxon no. 1294.*

Base of John Crow Peak, altitude 1,500-1,650 meters, *Underwood no. 2387; Maxon no. 1260.*

New Haven Gap, altitude 1,650 meters, *Underwood nos. 973, 1083, 1084; Clute no. 111.*

Morces Gap, altitude 1,500 meters, *Underwood nos. 509, 643; W. Harris no. 7127.*

Blue Mountain Peak, *W. Harris, no. 7487.*

Cinchona, altitude 1,500 meters, *Underwood no. 2626.*

Specimens of this plant were referred by Jenman<sup>a</sup> to *Polypodium rigescens* Bory<sup>b</sup> described from the island of Bourbon. From that species, however, *P. rigens* differs markedly in several characters upon which Willdenow laid stress in his original description of the latter species, and which were further brought out by Hooker and Greville upon the occasion of their figuring an authentic specimen.<sup>c</sup> It is distinguished by the hispid-pilose covering of its vascular parts (*P. rigescens* is described and figured as glabrous throughout), by its greater size and relatively greater breadth, and by the oblong rather than ovate-oblong shape of the pinnae. In these differences the Jamaican plants are perfectly constant.

The species is apparently not rare in Jamaica. Jenman's remarks upon its habitat and distribution are of interest: "Frequent on the branches of trees above 5,000 feet altitude; among the most rigid of all this miscellaneous group of species; uniformly found growing on the branches of trees of the high ridges to which the distribution is confined, not on the trunks as most of the other similar species do."

<sup>a</sup>Bull. Bot. Dept. Jamaica 4:117. 1897.

<sup>b</sup>*Polypodium rigescens* Bory; Willdenow, Sp. Pl. 5:183. 1810.

<sup>c</sup>Hooker and Greville, Icon. Fil. 2: pl. 216. 1831.

***Polypodium aromaticum* sp. nov.**

Plant rigid, 15–20 cm. high: rhizome stout, suberect, considerably elongate, with abundant dark-brown lanceolate attenuate chaff, and bearing numerous closely set fronds imbricated much after the manner of *Elaphoglossum huacastaro*: stipes averaging 3 cm. long, dull-brownish, hispid by scattering short spinescent hairs which from their fragility early impart a tuberculate appearance: laminae pinnate, about 13–17 cm. long, at most 4 cm. broad, erect, coriaceous, opaque, narrowly oblanceolate, giving rise rather abruptly to a terminal caudate segment 2–3 cm. long, which is subentire except at the coarsely serrate base; rachis hispid on both surfaces throughout similarly to the stipe; pinnae about 35 pairs, distinctly alternate, linear, strongly revolute, 2–2.5 mm. broad, nearly or quite their width apart, entire, falcate, fully adnate to the blackish rachis, dilated at the upper side, the apices acute; the lower pinnae gradually reduced, the lowermost not minute, 5–7 mm. long, extremely brittle; venation free, the distinctly black midveins bearing 8–13 pairs of obscure simple oblique veins which approach the margin; sori 6–12 pairs to the pinna, borne at half the distance to the margin.

Type in the herbarium of the New York Botanical Garden; collected on Blue Mountain Peak, Jamaica, at an altitude of 1950–2225 meters by L. M. Underwood, no. 1449, February 11–12, 1903. There is a fragment of the type specimen in the U. S. National Herbarium, no. 428420. Other specimens to be referred to this species are: *Underwood* no. 1469 and *Underwood* no. 2490, both from the summit of Blue Mountain Peak, and *Maxon* no. 1346a from the highest slopes of John Crow Peak, altitude 1650–1800 meters. There is additionally a single sheet in the Jenman herbarium.

Jamaican specimens of this species were referred by Jenman<sup>a</sup> to *Polypodium firmum* Klotzsch,<sup>b</sup> founded upon material from Chile and Guiana. They accord only indifferently with Klotzsch's description; and in any event the earlier *Polypodium firmum* of Kaulfuss,<sup>c</sup> applied to a very different plant from Australia, precludes use of the name.

There is a specimen in the U. S. National Herbarium, no. 200650, collected at Songo, Bolivia, November, 1890, by Miguel Bang, no. 901 (distributed as *P. plumula*), which is identical with the Jamaican plants here described as *P. aromaticum*; and it has, moreover, after a lapse of more than ten years the peculiar aromatic odor noted in these. It may indicate a general distribution of *P. aromaticum* in South America; but whether or not it represents the *P. firmum* of Klotzsch

<sup>a</sup>Bull. Bot. Dept. Jamaica 4: 123. 1897.

<sup>b</sup>*Polypodium firmum* Klotzsch, Linnaea 27: 378. 1847.

<sup>c</sup>Kaulfuss, Wesen der Farrenkr. 100. 1827.

is difficult to say. The name *Polypodium aromaticum* is founded upon Jamaican specimens and is not intended as a substitute for *P. firmum* Klotzsch. If the plants described by Klotzsch under the latter name shall prove distinct from *P. aromaticum*, they must necessarily receive a new name.

*Polypodium aromaticum* may be distinguished easily from *P. rigens* by its broader laminae, by its fewer pinnae (these linear and acute-pointed), by the absence of bristly hairs among the sporangia, and in recent specimens at least by the remarkable spicy odor of the fronds. The type specimen bears about 20 fronds. According to Jenman the species is "infrequent on the branches of trees above reach from the ground at 6,000-7,000 feet altitude in forests."